The lecture programme

Introduction to the module

This will cover the structure of the module, the aims and objectives of the course and the format of the module report and assessment as described in Part 1 of the Course overview.

Environmental management for sustainability

Environmental management can be viewed as a complete spectrum along which society first identifies an issue or problem, and subsequently assesses its importance, develops possible solutions, implements actions, then monitors (and evaluates) the effectiveness of the actions. There are different "players" or "actors" at each stage, e.g. the government or local authorities, non-governmental organisations (NGOs), environmental consultants, scientists, individuals, etc. At each stage different actors can have an input into a particular process of varying significance, depending on the issue or problem identified.

Please refer to *Environmental management for sustainability* section of Database for further discussion of these concepts.

Environmental management continuum

- context:
— social context
— environmental context
— strategic context
- scope — site specific (checklist)
- description
- evaluation
- prescription and planning
- implementation
- monitoring for sustainability

Refer to the following sections in the Database:
— *Environmental management for sustainability*
— *The concept of a sustainable city*

Methodology for site investigation

The three essential parts of a site investigation are:

- description — in which all the salient features of the site are considered for investigation
- evaluation — in which the features of the site are examined for their relative importance
- prescription — in which a course of action is decided

In this module the end point is not a prescription but a proposal for detailed site investigation based on a preliminary description and evaluation of the site.

Refer to the following sections in the Database:
— *Evaluating nature*
— *Site investigation*
— *Nature conservation management plans*
— *Murckowski Case Study*
— *Wełnowiec Case Study*
— *Lists of institutions collecting environmental data*
— *The Katowice UDP and a proposed system of protected areas*

— *Concepts of bioindicators, bioassays and biomarkers and their role*
— *The legal framework for nature protection and environmental management in Poland*

Description

Preliminary considerations

The context in which the investigation is being conducted must always be considered. The nature of the investigation will vary with its purpose: from description and evaluation to monitoring and management. Sites may be investigated for nature protection, for hazard assessment or to assess the impact of current and potential use. Any site investigation needs to have a context. The wider environment needs to be considered as well as specific site matters.

Investigation checklist of factors to be considered

The range of possible investigations will be discussed by experts in the field and related to the following checklist, bearing in mind that not all aspects will be relevant for all sites.

- Biotic

— organisms — to include: biological indicators of environmental quality, diversity indices
— vegetation, fauna, biocoenose
— biotic structure

- Physical

— spatial context — location and size of site
— geomorphology (to include post-industrial features and the built environment)
— hydrology
— geology
— soils and substrates:
type of soil, soil profile, analysis of soil leachate, metal content
— meteorology:
temperature, precipitation, wind direction, sunshine, air circulation, etc.
air pollution (dust fallout, gaseous pollutants, organics, ozone, etc.)

- Social and administrative factors

— human use, cultural value and heritage
— history and archaeology

— access and legal constraints
— municipality data — planning context, sources of various data about the environment in the local administrative district (e.g. Katowice)
- Landscape system considered as a whole (*Landeskunde*)
- Data handling (e.g. GIS, LIS, ATPOL)

Refer to relevant sections in the Database.

Evaluation and hazard assessment

The process of evaluation involves the comparison of the features of the site, one with another to place them in order of importance. It then becomes possible to decide the strategy for the next phase of investigation in which the most important features received the greatest attention.

In the context of urban site investigation as proposed for the present module, there are two main contrasting objectives **within** evaluation:

— determining the nature conservation value of the different aspects of the site
— determining the hazard presented by the different aspects of the site

When these two aspects of evaluation are put together a feasible strategy for managing and developing the site should emerge.

Details of nature conservation evaluation and evaluation for environmental hazard are presented in the relevant section of the Database.

The prescription for site management

The detail of this section is outside the scope of the present module, but relevant articles have been included in the Database.

Writing the module report

The final report should be divided into three main sections: description, evaluation and prescription.

Description. This will assemble the information provided before the investigation, and the information obtained in the course of the investigation. Each student will contribute a section or chapter dealing with his or her own investigation.

Evaluation. This section will be based on the features described in the description, and according to the nature of the site it will focus either on the conservation of the valuable features of the site or on the assessment of hazard presented by the site. Relevant methodologies may be found in the Database and in the examples from *Murckowski Forest* and *Welnowiec spoil tips*, and in the essays in the Database on *Site investigation* and *Evaluating nature*. You may need to base a Risk Assessment on the application of the Hazard — Pathway — Target Model, or apply nature conservation evaluation criteria to the valuable features of the site as appropriate.

The results of the assessment should then be related to possible alternative outcomes for the site. You should then try to put together a proposal for the future of the site, with **Ideal Objectives**, a discussion of the **Constraints** which might affect our ability to achieve these objectives, and as a result the selection of achievable **Operational Objectives**.

Prescription. For the purposes of this module you will not be required to prepare a detailed prescription for the site. This section should instead focus on the fact that within the constraints operating on a student group a great deal more investigation will be necessary before the evaluation, and hence the prescription, can be finalised. Your group should therefore assemble a detailed proposal for the further investigations of the site that will be necessary before the evaluation can be finalised.